VSL 270

Evaluation of *Perna canaliculus* on the inflammatory markers TNF-alpha and IL-12 p40.

**Objective:** This cell culture study was designed to evaluate the effect of *Perna canaliculus* on the production of pro-inflammatory cytokines TNF-α and IL-12 p40.

**Background:** Pro-inflammatory cytokines TNF-α and IL-12 p40 have been implicated in the pathogenesis of arthritis. *Perna canaliculus* has been found to have anti-inflammatory effects in CIA models and in other systems. The mechanism by which Perna exerts its anti-inflammatory effects may reside in its ability to suppress the immune response and specifically to down-regulate TNF-α and IL-12 p40 cytokines.

**Methods:** A monocytic cell line that produces IL-12 p40 and TNF-α upon LPS stimulation was selected to evaluate the effect of *Perna canaliculus* on the inflammatory process. Following established cell culture techniques, the monocytes were cultured with Perna extract using Tween -20 in a concentration range of 0.0001-1 uM for 48 hours. This was followed by LPS stimulation over night and the levels of TNF-α and IL-12 p40 were determined 48 hours later by ELISA and were compared to stimulated controls.

**Results:** Perna treated cells showed a statistically significant reduction in pro-inflammatory cytokines. Treatment of monocytes in cell culture with a Perna extract resulted in a dose-dependant reduction in the production of TNF-α and IL-12p40 cytokines, particularly at concentrations greater than 0.1 mg/ml.

**Conclusion:** This study shows that Perna appears to reduce key markers of inflammation. The study showed that Perna was effective in reducing production of both TNF-α and IL-12 p40 cytokines in stimulated monocytes. Perna’s ability to reduce these pro-inflammation cytokines may help explain the mechanisms by which Perna can both prevent and reverse inflammation in both animal and human studies.

**Clinical Relevance:** The disease promoting role of elevated TNF-α in arthritis is well-established and this study demonstrates that Perna can reduce TNF-α and other pro-inflammatory cytokines. These results when combined with other animal and all culture work will help to explain how Perna can benefit dogs and humans that have OA and other inflammatory conditions.